


**ARIZONA DEPARTMENT OF TRANSPORTATION  
ROADWAY ENGINEERING GROUP  
OFFICE MEMO**

**April 25, 1997**

TO: All Users of Construction Standards

FROM:  Terry H. Otterness, Design Program Manager, Roadway Engineering Group

RE: Revisions to Construction Standards - English Version

Several changes are being made to Construction Standard Drawings and the Construction Standards Index.

These revisions result from a Value Engineering Study on catch basins and affect Standards C-15.10 through C-15.81; Std. C-15.60 is deleted and Std. C-15.75 remains unchanged.

The Catch Basin Standards reflect significant changes including using only one type (EF) and size of grate and frame, placing the grate against the pavement edge to increase the amount of grate opening without encroaching into the pavement, changing the nose angle to a bent plate for curb opening catch basins to decrease and simplify forming, changing the access cover to the round cover used by the City of Phoenix, clarifying the use of catch basins with wide gutters, clarifying notes, and changing depth of wing walls to simplify forming. Revisions are indicated on each specific drawing.

Std. C-10.67 is a new standard for Concrete Median Barrier, Tall Type 'F', Cast in Place.

May, 1997

TO: ALL USERS OF THE CONSTRUCTION STANDARD DRAWINGS  
FROM: THOMAS H. SCHECK, STANDARDS ENGINEER *THO*  
RE: ERRATA SHEET - ENGLISH

## ERRATA

The following revisions should be made to the Construction Standards dated July, 1994 (English). These revisions will remain in effect until new Standard Sheets are revised and distributed.

### REVISED DRAWING

### REVISION

|                    |  |
|--------------------|--|
| C-05.20<br>Sheet 1 | Only one expansion joint is required on each side of the driveway as shown on "DRIVEWAY WITH SIDEWALK ADJACENT TO CURB" these are the exterior joints, only. When the driveway is concrete, another expansion joint is needed along the backside of the sidewalk between the sidewalk and the driveway in all cases where the sidewalk crosses the driveway. |
| C-05.50            | All references to "Class 2 AB" should be changed to read "Cement-Treated Slurry" on "SECTION B-B".   |
| C-07.01<br>Sheet 1 | Delete drawing "TRANSVERSE CONSTRUCTION JOINT, TC Joint Non-Skewed Joint". The drawing "TRANSVERSE CONSTRUCTION JOINT, TC Skewed Joint" shall apply to both skewed and non-skewed joints.  |
| C-07.04            | Under "GENERAL NOTES" change the "Minimum" to "Maximum" at "varies - 18' Minimum".   |
| C-07.05            | Under "GENERAL NOTES" change the "Minimum" to "Maximum" at "varies - 18' Minimum".   |
| C-07.10            | As shown on "CROSSROAD AT RAMP TERMINAL" delete the note "Expansion Joint Spacing (60' Max) (Typical)".  |

**REVISED**  
**DRAWING**

**REVISION**

|                          |   |
|--------------------------|---|
| C-10.22<br>Sheet 1       | As shown on "SECTION" change the note on structural shape block to read "M14x17.2x14", M14x18x14" or W14x22x14" Structural Shape Block".  |
| C-10.31<br>Sheet 2 and 3 | As shown on "Guard Rail Transition (Timber Post)/(Steel Post) under "ELEVATION" delete the notes about "Rectangular Plate Washers". This type washer should not be used on these two large posts.                                     |
| C-10.44<br>Sheet 1       | Under "SOIL PLATE DETAIL" the reference to "3/4" Hole" change it to read "13/16" Hole".   |
| C-10.45                  | Under "GENERAL NOTES" add this note as 5. - Bearing plate shall conform to ARTBA Standard F-41-79 except that the dimension from the bottom of the plate to the center of the hole shall be 2 1/4".                                   |
| C-10.66                  | Under "GENERAL NOTES" in note 1. change "Half" to "Median".   |
| C-13.10<br>Sheet 2 of 2  | Change note 1. to read "Minimum cover over pipe culverts shall be 12", measured from the top of pipe"   |
| C-13.25                  | Do not use "TYPE 1, RIVITED OR BOLTED CONNECTIONS" or "TYPE 5, SLIP SEAM CONNECTIONS". This standard applies to both round or arch pipes, however only the round are shown. This drawing is still applicable for "L" on end sections. |
| C-13.30                  | Under "GENERAL NOTES" in note 7. change "Std. C-14.20" to "Std. B-11.12".   |
| C-13.60                  | All references to "AB Class 2" should be changed to read "Cement-Treated Slurry" on "TYPE D & G CURB AND GUTTER WITH SLOTTED DRAIN" and "TYPE B OR C CURB AND GUTTER WITH SLOTTED DRAIN".   |

# CONSTRUCTION STANDARD - INDEX

| DRAWING NO. | TITLE   | DRAWING NO. | TITLE  |
|-------------|---|-------------|--|
| C-01.10     | SYMBOL LEGEND                                 | C-10.01     | TYPE A GUARD RAIL INSTALLATION, REFLECTOR TAB  |
| C-01.11     | SYMBOL LEGEND                                 | C-10.02     | TYPE B GUARD RAIL INSTALLATION, REFLECTOR TAB  |
| C-01.12     | SYMBOL LEGEND                                 | C-10.03     | MEASUREMENT LIMITS FOR W BEAM AND THRIE BEAM SYSTEM (2 SHEETS)                           |
| C-01.13     | SYMBOL LEGEND                                 | C-10.06     | HALF BARRIER TERMINAL W/TYPE B OR C CURB & GUTTER  |
| C-01.30     | GENERAL ABBREVIATIONS                         | C-10.15     | BARRIER DETAILS AT PIERS   |
| C-01.31     | GENERAL ABBREVIATIONS                         | C-10.20     | G4(1W) AND G4(2W) BLOCKED OUT W BEAM (TIMBER POST)                                       |
| C-01.32     | GENERAL ABBREVIATIONS                         | C-10.21     | G4(1S) AND G4(2S) BLOCKED OUT W BEAM (STEEL POST)  |
|             |   | C-10.22     | G4(MODIFIED) BLOCKED OUT W BEAM WITH SPECIAL CURB AND GUTTER (2 SHEETS)                  |
| C-02.10     | SLOPES, INTERSTATE                            | C-10.23     | G9(A) AND G9(B) BLOCKED OUT THRIE BEAM (STEEL POST)                                      |
| C-02.20     | SLOPES, PRIMARY ROADWAYS                      | C-10.24     | G9(C) BLOCKED OUT THRIE BEAM (STEEL POST)  |
| C-02.30     | SLOPES, SECONDARY/MISC ROADWAYS               | C-10.28     | NESTED STEEL W BEAM (2 SHEETS)   |
| C-02.50     | SUPERELEVATION DISTRIBUTION                   | C-10.29     | BOLTED ANCHOR GUARD RAIL (2 SHEETS)  |
| C-03.10     | DITCHES, CHANNELS, DIKES AND BERMS (5 SHEETS) | C-10.30     | GUARD RAIL TRANSITION, W BEAM TO CONCRETE HALF BARRIER (APPROACH) (3 SHEETS)             |
|             |   | C-10.31     | GUARD RAIL TRANSITION, W BEAM TO CONCRETE HALF BARRIER (APPROACH) (WITH CURB) (3 SHEETS) |
| C-04.10     | SPILLWAY, EMBANKMENT                          | C-10.32     | GUARD RAIL TRANSITION, W BEAM TO CONCRETE HALF BARRIER (DEPARTURE) (3 SHEETS)            |
| C-04.20     | DOWNDRAIN, EMBANKMENT                         | C-10.39     | HARDWARE FOR W BEAM TRANSITION TO CONCRETE BARRIER                                       |
| C-04.30     | SPILLWAY LENGTH TABLE                         | C-10.40     | GUARD RAIL EXTRUDER TERMINAL, GET-1 (2 SHEETS)   |
| C-04.40     | DOWNDRAIN LENGTH TABLE                        | C-10.41     | GUARD RAIL EXTRUDER TERMINAL, GET-2 (2 SHEETS)   |
| C-04.50     | DOWNDRAIN ENERGY DISSIPATOR                   | C-10.44     | HARDWARE FOR GUARD RAIL EXTRUDER TERMINAL (3 SHEETS)                                     |
|             |   | C-10.45     | GUARD RAIL ANCHOR ASSEMBLY STEEL TERMINAL POST   |
| C-05.10     | SINGLE CURB, CURB & GUTTER EMBANKMENT CURB    | C-10.60     | HALF BARRIER, CAST IN PLACE, SLIP FORM & FIXED FORM                                      |
| C-05.11     | RAMP CURB & GUTTER LAYOUT (2 SHEETS)          | C-10.61     | HALF BARRIER, PRECAST  |
| C-05.12     | CURB & GUTTER TRANSITIONS (3 SHEETS)          | C-10.62     | CONCRETE HALF BARRIER WITH GUTTER  |
| C-05.20     | CONCRETE DRIVEWAYS & SIDEWALKS (2 SHEETS)     | C-10.64     | HALF BARRIER (AT PIERS) (2 SHEETS)   |
| C-05.30     | SIDEWALK RAMP (4 SHEETS)                      | C-10.65     | HALF BARRIER WITH SIDEWALK   |
| C-05.40     | MEDIAN PAVING AND NOSE TRANSITION             | C-10.66     | MEDIAN BARRIER, CAST IN PLACE, SLIP FORM & FIXED FORM                                    |
| C-05.50     | CONCRETE BUS BAY                              | C-10.67     | CONCRETE MEDIAN BARRIER, TALL TYPE 'F', CAST IN PLACE                                    |
|             |   | C-10.68     | MEDIAN BARRIER, PRECAST  |
| C-06.10     | DRIVEWAY & TURNOUT LAYOUTS (2 SHEETS)         | C-10.70     | CONCRETE HALF BARRIER TRANSITION (4 SHEETS)  |
|             |   | C-10.71     | CONCRETE HALF BARRIER TRANSITION (3 SHEETS)  |
| C-07.01     | PCCP JOINTS (2 SHEETS)                        | C-10.74     | HARDWARE FOR CONCRETE BARRIER TRANSITIONS  |
| C-07.02     | LOAD TRANSFER DOWEL ASSEMBLY                  | C-10.75     | BARRIER TRANSITION-TANGENT-DEPARTURE TYPES 1, 2, AND 3 (3 SHEETS)                        |
| C-07.03     | MAINLINE PCCP JOINT LOCATIONS (8 SHEETS)      | C-10.76     | BARRIER TRANSITION-CURVE   |
| C-07.04     | ENTRANCE RAMP PCCP JOINTS                     | C-10.80     | RUB RAIL (2 SHEETS)  |
| C-07.05     | EXIT RAMP PCCP JOINTS                         | C-10.83     | HARDWARE FOR RUB RAIL  |
| C-07.06     | TRENCH BACKFILL AND PAVEMENT REPLACEMENT      | C-10.97     | GLARE SCREEN, CONCRETE MEDIAN BARRIER (3 SHEETS)   |
| C-07.10     | CROSSROAD PCCP JOINTS                         |             |  |
| C-08.10     | RAMP GEOMETRICS                               | C-11.10     | ROADWAY CATTLE GUARD (3 SHEETS)  |
| C-08.20     | PAVED GORE AREA                               | C-11.20     | CATTLE GUARD, DRAINAGE   |
|             |   | C-11.30     | CATTLE GUARD, RAILROAD   |
| C-09.10     | GROOVING FOR BITUMINOUS SHOULDERS             | C-12.10     | FENCE, WOVEN AND BARBED WIRE WITH GATES (5 SHEETS)                                       |
|             |   | C-12.20     | FENCE, CHAIN LINK TYPES 1 AND 2 WITH GATES (3 SHEETS)                                    |
|             |   | C-12.30     | CHAIN LINK CABLE BARRIER (3 SHEETS)  |

# CONSTRUCTION STANDARD - INDEX

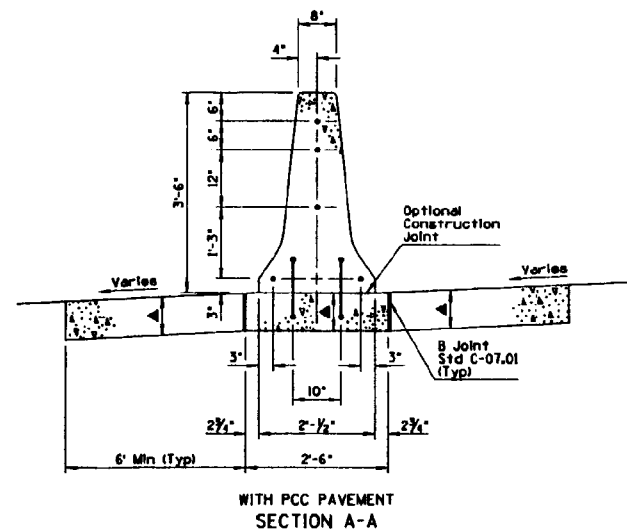
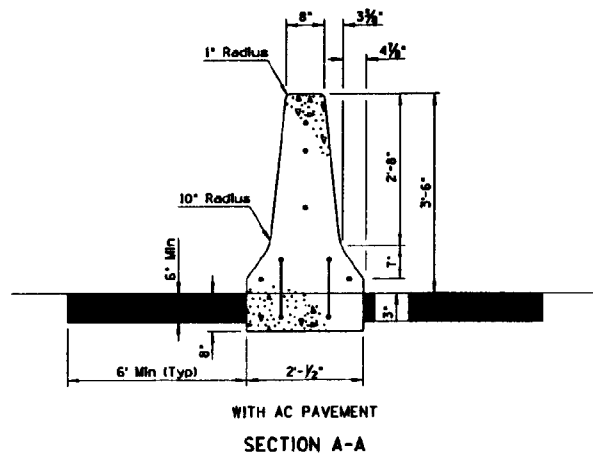
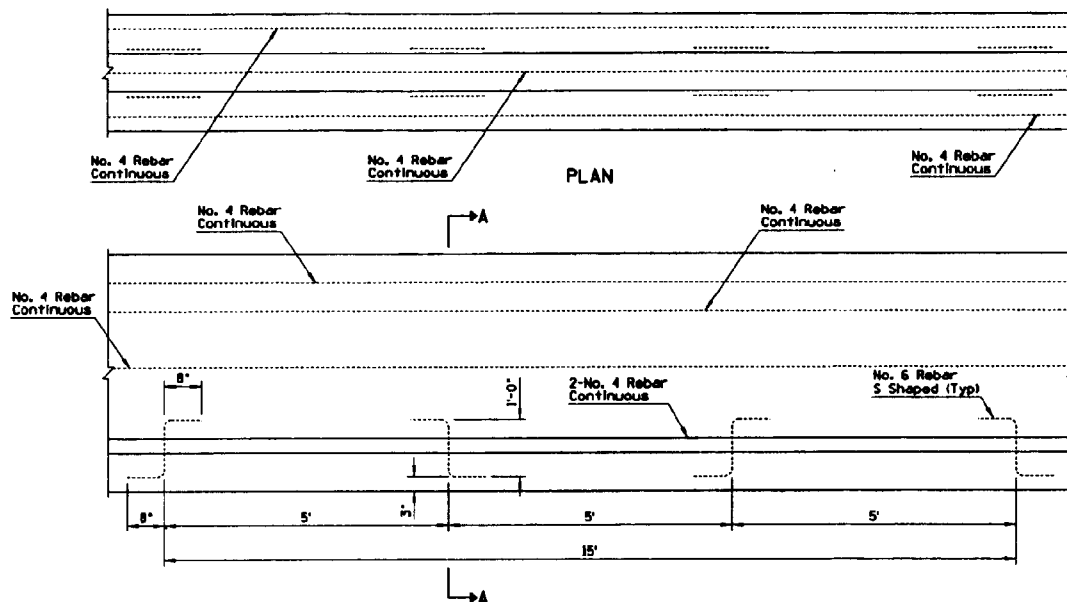
## DRAWING NO. TITLE

|         |   |
|---------|---|
| C-13.10 | PIPE CULVERT INSTALLATION (2 SHEETS)                      |
| C-13.15 | TYPICAL PIPE INSTALLATION                                 |
| C-13.20 | PIPE, REINFORCED CONCRETE END SECTION                     |
| C-13.25 | PIPE, CORRUGATED METAL, END SECTION                       |
| C-13.30 | PIPE & PIPE ARCH, CORRUGATED METAL CONCRETE INVERT PAVING |
| C-13.55 | PIPE, CATTLE-VEHICLE PASS, MITERED END TREATMENT          |
| C-13.60 | SLOTTED DRAIN DETAILS                                     |
| C-13.65 | SLOTTED DRAIN INSTALLATION DETAILS                        |
| C-13.70 | STORM DRAIN CONNECTION DETAILS                            |
| C-13.75 | STORM DRAIN OUTLET DETAILS (2 SHEETS)                     |
| C-13.80 | PIPE COLLAR DETAILS                                       |
| C-15.10 | CATCH BASIN, TYPE 1                                       |
| C-15.20 | CATCH BASIN, TYPE 3 (2 SHEETS)                            |
| C-15.30 | CATCH BASIN, TYPE 4                                       |
| C-15.40 | CATCH BASIN, TYPE 5 (2 SHEETS)                            |
| C-15.50 | CATCH BASIN, GRATES                                       |
| C-15.60 | DELETED   |
| C-15.65 | CATCH BASIN ACCESS, FRAME AND COVER DETAILS               |
| C-15.70 | CATCH BASIN MISC. DETAILS (2 SHEETS)                      |
| C-15.75 | CATCH BASIN, DROP INLET                                   |
| C-15.80 | CATCH BASIN, MEDIAN FLUSH                                 |
| C-15.81 | CATCH BASIN, MEDIAN, SIDE SLOPE                           |
| C-15.90 | CATCH BASIN, MEDIAN DIKE, PRECAST                         |
| C-15.91 | FREEWAY CATCH BASIN DETAILS (2 SHEETS)                    |
| C-15.92 | SPECIAL CATCH BASIN WITH HALF BARRIER                     |
| C-16.10 | IRRIGATION HEADWALLS 18" TO 60" DIAMETER PIPES            |
| C-16.20 | IRRIGATION STANDPIPES                                     |
| C-16.30 | IRRIGATION VALVE AND GATE                                 |
| C-16.40 | IRRIGATION SLEEVES  |
| C-17.10 | BANK PROTECTION, RAIL TYPES 1, 2 & 3                      |
| C-17.20 | BANK PROTECTION, RAIL TYPES 4, 5 & 6                      |

## DRAWING NO. TITLE

|         |   |
|---------|---|
| C-18.10 | MANHOLE DETAILS                                       |
| C-18.20 | MANHOLE FRAME & COVER DETAILS                         |
| C-18.30 | MISCELLANEOUS MANHOLE DETAILS                         |
| C-18.40 | MANHOLE RISER DETAILS                                 |
| C-19.10 | FORD - CONCRETE WALLS                                 |
| C-19.20 | FORDS - TYPES 1 & 2                                   |
| C-21.10 | SURVEY MONUMENT, FRAME AND COVER, RIGHT OF WAY MARKER |
| C-21.20 | STANDARD MARKER                                       |
| C-22.10 | UTILITY LINE, PROTECTIVE CONCRETE SLAB                |
| C-22.15 | SANITARY SEWER ENCASEMENT                             |
| C-22.20 | PIPE SUPPORT ACROSS TRENCHES (3 SHEETS)               |
| C-22.25 | PRECAST SANITARY SEWER MANHOLES                       |
| C-22.30 | STUB OUT AND PLUG                                     |
| C-22.35 | DROP SEWER CONNECTIONS                                |
| C-22.40 | SEWER CLEANOUT  |
| C-23.10 | THRUST BLOCKS FOR WATER LINES                         |
| C-23.15 | BLOCKING FOR WATER VALVES GATE AND BUTTERFLY          |
| C-23.20 | ANCHOR BLOCK FOR VERTICAL BENDS                       |
| C-23.25 | VERTICAL REALIGNMENT FOR WATER MAINS                  |
| C-23.30 | VALVE BOX INSTALLATION (2 SHEETS)                     |
| C-23.35 | TAPPING SLEEVE AND VALVE INSTALLATION                 |
| C-23.40 | JOINT RESTRAINT WITH TIE RODS                         |
| C-23.45 | CONCRETE WATER METER BOX                              |
| C-23.50 | STEEL COVER FOR WATER METER BOX                       |
| C-23.55 | WATERLINE-CUT AND PLUG 12" DIA. MAIN AND SMALLER      |
| C-23.60 | HYDRANT INSTALLATION                                  |
| C-23.65 | FIRE HYDRANT LOCATIONS                                |

| NO. | REVISION | DATE | BY |
|-----|----------|------|----|
|     |          |      |    |
|     |          |      |    |
|     |          |      |    |



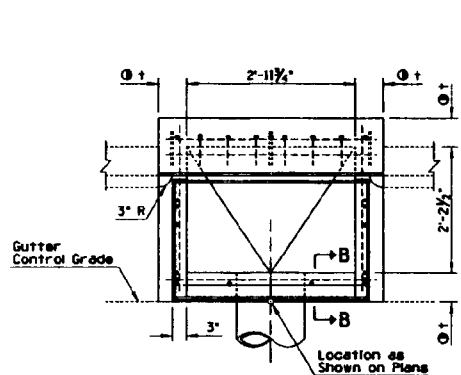
## GENERAL NOTES

1. Median Barrier shall be constructed by the slip form or by the formed Cast-In-Place method.
2. When obstacles are encountered which prevent the use of slip form equipment, the closure shall be accomplished by the use of stationary forms.
3. Concrete shall be Class S, design strength  $f'_c = 3000$  PSI.
4. If the footing and barrier are cast monolithically, No. 6 S shaped rebar will not be required.
5. In no case shall the width of barrier exceed the width of the barrier footing or overhang the adjacent pavement.
6. No. 4 Rebar shall extend 12' past the construction joint at the completion of the day's pour.

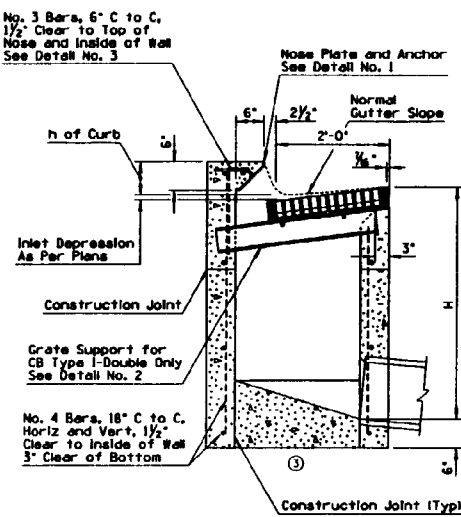
▲ Depth to match adjacent PCCP thickness (8" Min).

|   |   |                        |
|---|---|------------------------|
| DESIGN APPROVED<br><i>Joseph H. Ott</i>                 | STATE OF ARIZONA<br>DEPARTMENT OF TRANSPORTATION<br>DIVISION OF HIGHWAYS<br>STANDARD DRAWINGS | DATE<br>5/97           |
| APPROVED FOR<br>CONSTRUCTION<br><i>Paul M. Williams</i> | CONCRETE MEDIAN BARRIER<br>TALL TYPE 'F'<br>CAST IN PLACE                                     | DRAWING NO.<br>C-10.67 |

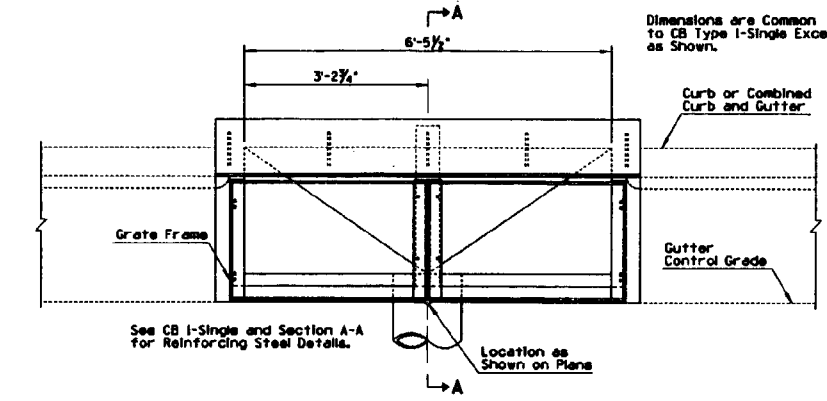
| REVISION                                | DATE   | BY     |
|---|--------|--------|
| 1. REVISED FOR NEW FRAME AND NOSE PLATE | 1/1/70 | 1/1/70 |
| 2. REVISED DETAIL                       | 1/1/70 | 1/1/70 |
| 3. REVISED FRAME FOR PAVING AFTER WALLS | 1/1/70 | 1/1/70 |
| 4. REVISED DETAIL FOR NEW               | 1/1/70 | 1/1/70 |



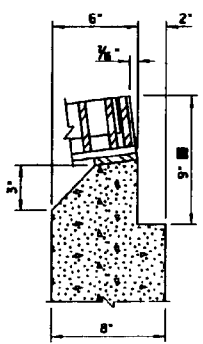
PLAN - CATCH BASIN TYPE I - SINGLE



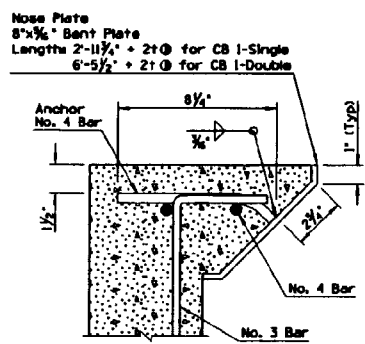
SECTION A-A



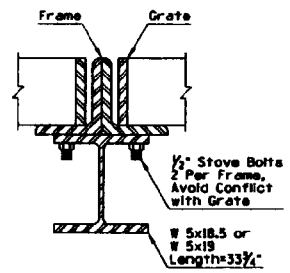
PLAN - CATCH BASIN TYPE I - DOUBLE



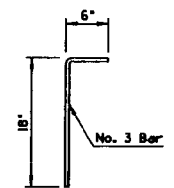
SECTION B-B  
USE THIS SECTION  
WHEN 1'-8\"/>



DETAIL NO. 1

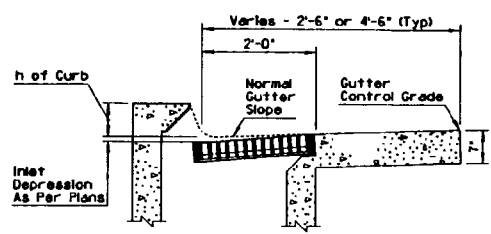


DETAIL NO. 2



DETAIL NO. 3

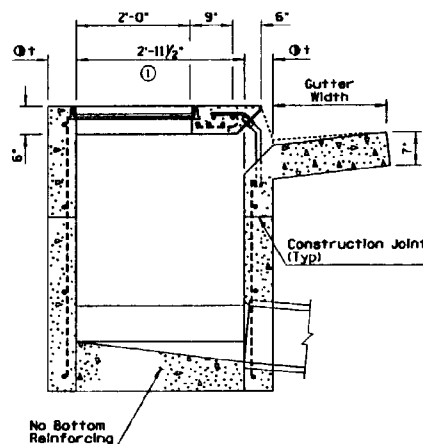
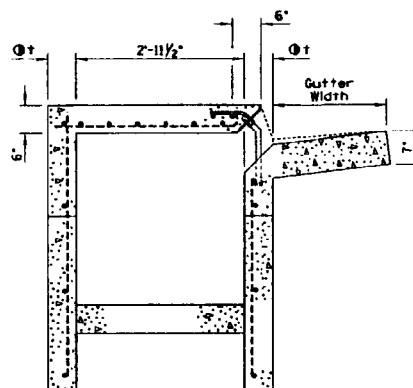
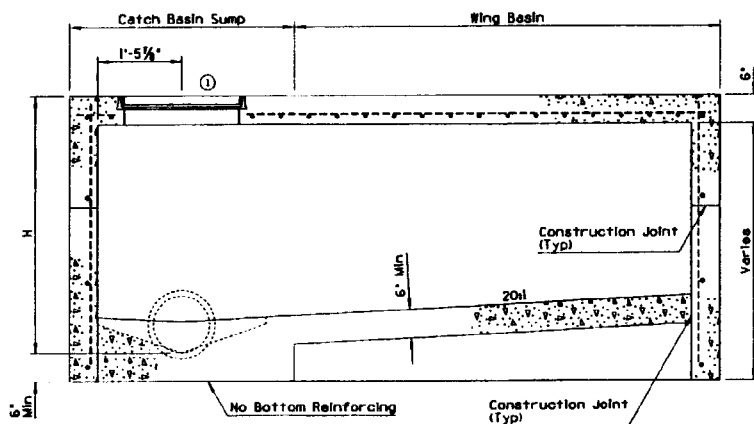
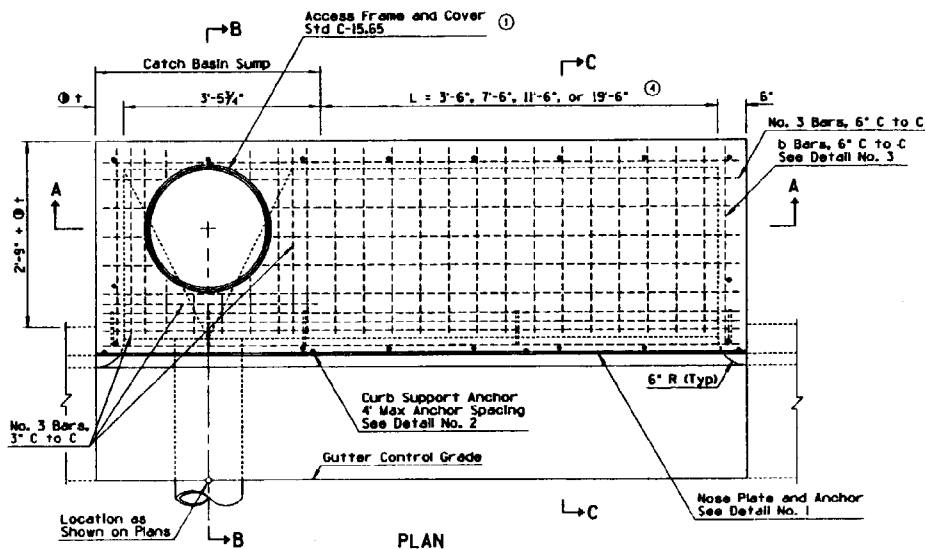
- GENERAL NOTES**
1. Catch basin used at roadway sag only.
  2. Pipes can be placed in any wall.
  3. Sump Floor shall have a wood trowel finish and a minimum 4:1 slope in all directions to outlet.
  4. All structural steel shall be ASTM A36.
  5. Welding shall be in accordance with Standard Welding Specifications.
  6. Grate, frame, beam and nose plate shall be given one shop coat of No. 1 paint.
  7. All concrete shall be Class B.
  8. Construction joints and drains shall be placed to meet field conditions. See Std C-15.70.
  9. Any specified inlet depression shall be warped to opening according to Std C-15.70.
  10. Silicone sealant shall be placed between the grate frame and PCPP, recessed 1/4\"/>



DETAIL NO. 4

|   |   |                        |
|---|---|------------------------|
| DESIGN APPROVED<br><i>Joseph Ottaviano</i>    | STATE OF ARIZONA<br>DEPARTMENT OF TRANSPORTATION<br>DIVISION OF HIGHWAYS<br>STANDARD DRAWINGS | REV.<br>5/97           |
| APPROVED FOR<br>CONSTRUCTION<br><i>Robert</i> | ① CATCH BASIN, TYPE I   | DRAWING NO.<br>C-15.10 |

| REVISIONS |  |      | REVISIONS |                    |      |
|-----------|--|------|-----------|--------------------|------|
| NO.       | DESCRIPTION                            | DATE | NO.       | DESCRIPTION        | DATE |
| 1         | REVISED FOR NEW ACCESS FRAME AND COVER | 5/97 | 1         | ADDED SECTION      | 5/97 |
| 2         | ADDED SHEETS FOR REVISION DETAILS      | 5/97 | 2         | CONSTRUCTION NOTES | 5/97 |
| 3         | REVISED SECTION                        | 5/97 | 3         | ADDED NOTE         | 5/97 |
| 4         | REVISED LAYOUT OF BASIN                | 5/97 |           |                    |      |



# GENERAL NOTES

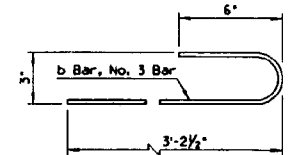
- Catch basin can be used on grade or at roadway sag.
- Catch basin has three configurations:  
Sump Only-Sump portion of catch basin (See Detail No. 4).  
Single Wing (Illustrated)-Sump with wing basin upstream.  
Double Wing-Sump with symmetrical wing basins each side.
- Pipes can be placed in any wall except wall adjacent to wing basin.
- Floor shall have a wood trowel finish. Slope of the sump portion of the catch basin along the axis of the pipe shall be 4:1.
- Any specified inlet depression shall be warped to opening according to Std C-15.70.
- All structural steel shall be ASTM A36.
- Nose plate, access frame and cover shall be given one shop coat of No. 1 paint.
- All concrete shall be Class B.
- All reinforcing bars shall be #4, 1'-6\" C to C both ways and 1 1/2' clear to inside of walls and outside of wing basin floor except as shown.
- Curb opening area (sq ft) per inch of curb "h" + gutter depression = curb opening length (ft) x 0.0833.
- Welding shall be in accordance with Standard Welding Specifications.
- Construction joints and drains shall be placed to meet field conditions. See Std C-15.70.
- ① = 6' when H is 8' or less.  
8' when H is greater than 8'.

|  |   |  |
|--|---|--|
| DESIGN APPROVED<br><i>Joseph H. Ottomano</i>     | STATE OF ARIZONA<br>DEPARTMENT OF TRANSPORTATION<br>DIVISION OF HIGHWAYS<br>STANDARD DRAWINGS | REV.<br>5/97                           |
| APPROVED FOR<br>DISTRIBUTION<br><i>Paul Wall</i> | ① ② CATCH BASIN, TYPE 3   | DRAWING NO.<br>C-15-20<br>Sheet 1 of 2 |

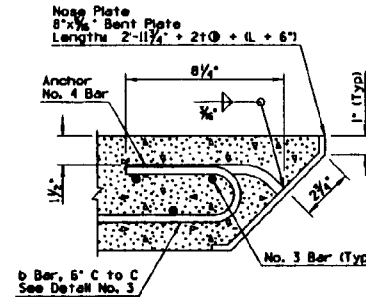


# GENERAL NOTES

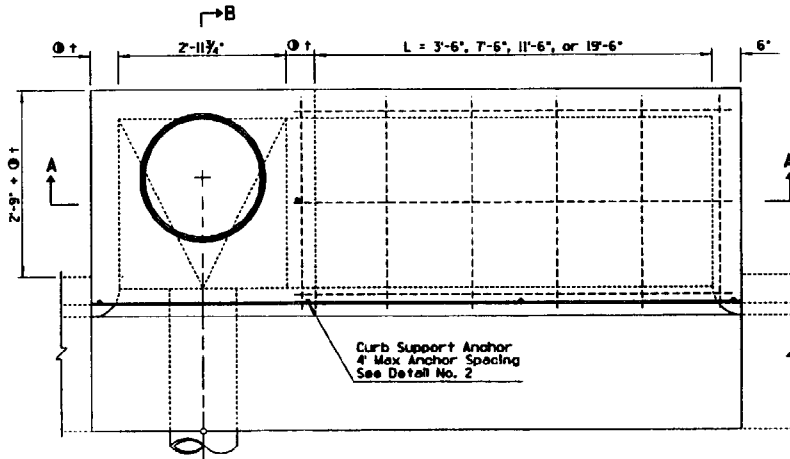
1. See sheet 1 of 2 for other dimensions, notes and reinforcing steel.
2.  $\text{Ø} + t = 6"$  when H is 8' or less.  
8" when H is greater than 8'.



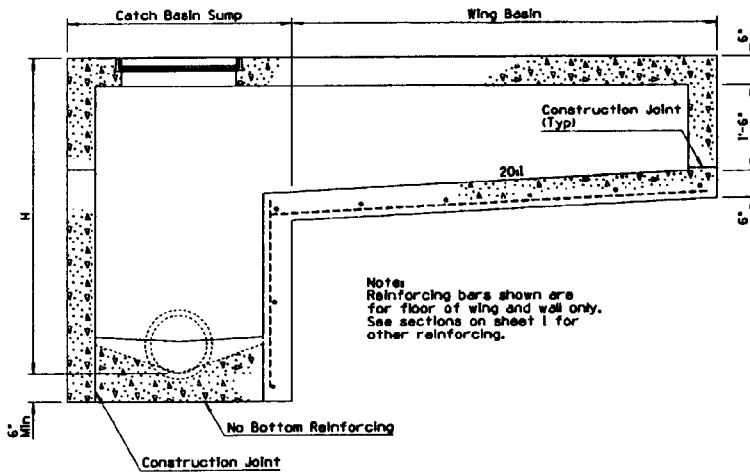
DETAIL NO. 3



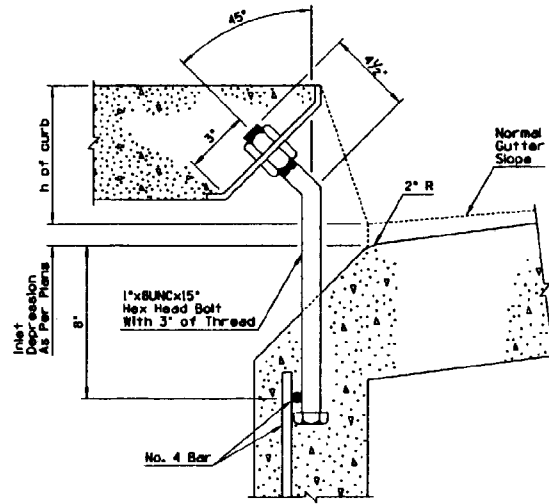
DETAIL NO. 1



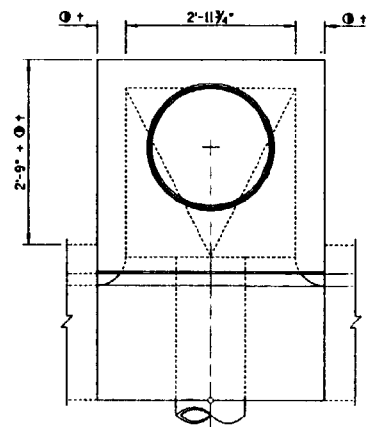
PLAN



SECTION A-A  
USE THIS SECTION WHEN H IS GREATER THAN 5'



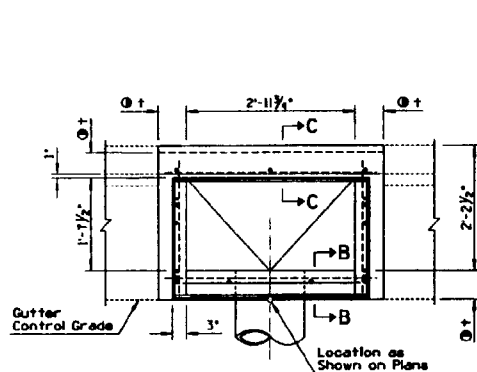
DETAIL NO. 2  
CURB SUPPORT ANCHOR



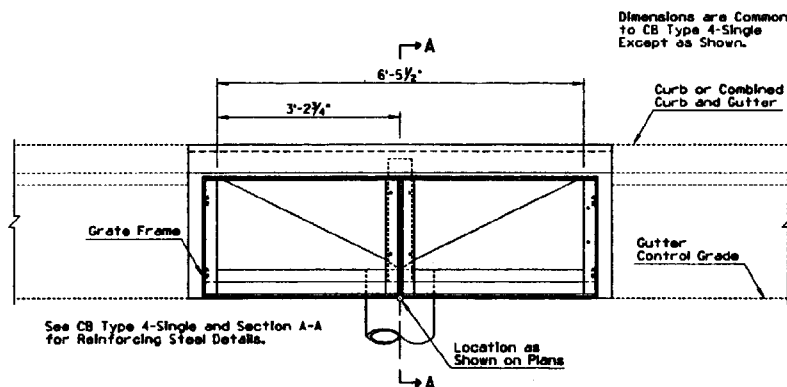
DETAIL NO. 4

|   |   |                         |
|---|---|-------------------------|
| DESIGN APPROVED<br><i>Joseph C. Ott</i>                 | STATE OF ARIZONA<br>DEPARTMENT OF TRANSPORTATION<br>DIVISION OF HIGHWAYS<br>STANDARD DRAWINGS | DATE<br>5/97            |
| APPROVED FOR<br>DISTRIBUTION<br><i>Ronald C. Miller</i> | CATCH BASIN, TYPE 3   | C-15.20<br>Sheet 2 of 2 |

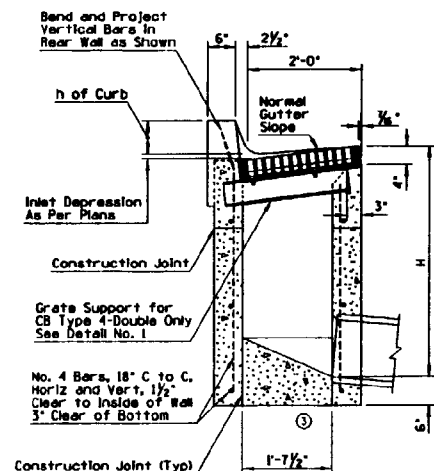
| REVISION | DESCRIPTION             | DATE | BY  |
|----------|-------------------------|------|-----|
| 1        | REVISION 1 TO NEW FRAME | 5/97 | PHB |
| 2        | REVISION 2 TO NEW FRAME | 5/97 | PHB |
| 3        | REVISION 3 TO NEW FRAME | 5/97 | PHB |
| 4        | REVISION 4 TO NEW FRAME | 5/97 | PHB |



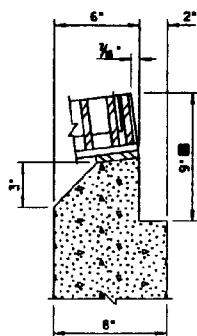
PLAN - CATCH BASIN TYPE 4 - SINGLE



PLAN - CATCH BASIN TYPE 4 - DOUBLE

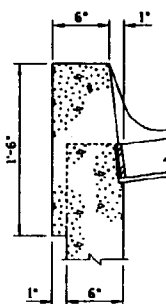


SECTION A-A

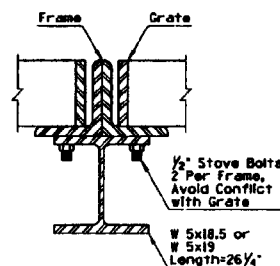


USE THIS SECTION WHEN t=8"

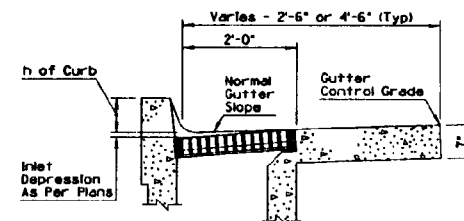
SECTION B-B ②



SECTION C-C ④



DETAIL NO. 1



DETAIL NO. 2 ①

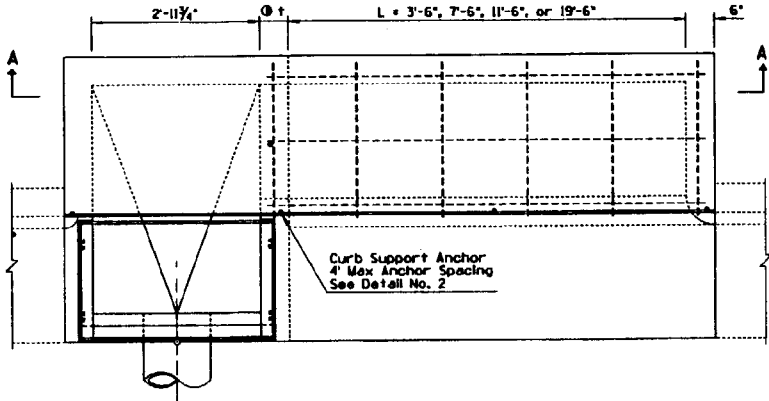
## GENERAL NOTES

1. Catch basin can be used on grade or at roadway seg.
2. Pipes can be placed in any wall.
3. Floor shall have a wood trowel finish and a minimum 4:1 slope along the axis of the pipe toward the pipe.
4. Curb over catch basin shall not be constructed until catch basin concrete has set for a minimum of 24 hours.
5. Catch basin can be used with curb and gutter (as shown) or without.
6. See Stds C-15.50 for grate and frame details and opening areas.
7. Any specified inlet depression shall be warped to opening according to Std C-15.70.
8. All structural steel shall be ASTM A36.
9. Grate, frame and beam shall be given one shop coat of No. 1 paint.
10. All concrete shall be Class B.
11. Construction joints and drains shall be placed to meet field conditions. See Std C-15.70.
12. Silicone sealant shall be placed between the grate frame and PCGP, recessed 1/4\"/>

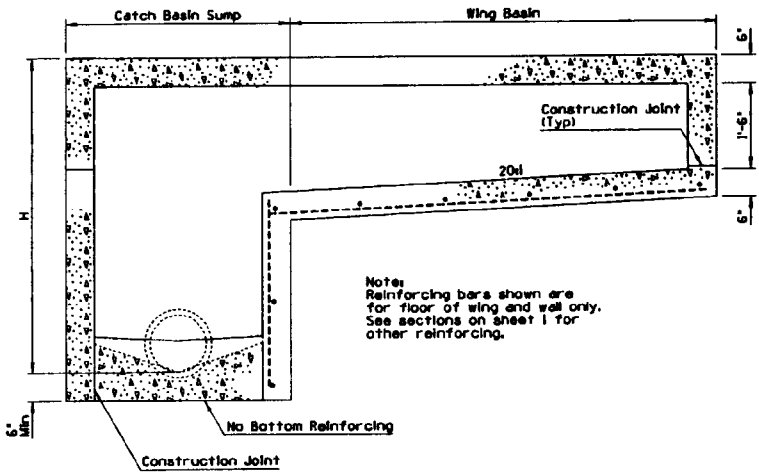
|  |   |                        |
|--|---|------------------------|
| DESIGN APPROVED<br><i>Joseph H. Ottum</i>          | STATE OF ARIZONA<br>DEPARTMENT OF TRANSPORTATION<br>DIVISION OF HIGHWAYS<br>STANDARD DRAWINGS | REV.<br>5/97           |
| APPROVED FOR<br>CONSTRUCTION<br><i>Paul Wallin</i> | ① CATCH BASIN, TYPE 4   | DRAWING NO.<br>C-15.30 |



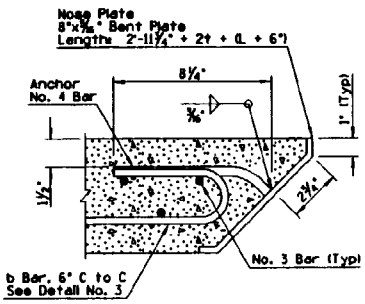
| REVISION | DESCRIPTION | DATE | BY |
|----------|-------------|------|----|
|          |             |      |    |
|          |             |      |    |
|          |             |      |    |



PLAN

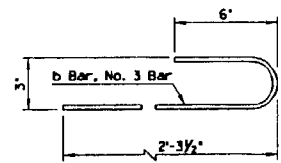


SECTION A-A  
USE THIS SECTION WHEN H IS GREATER THAN 5'

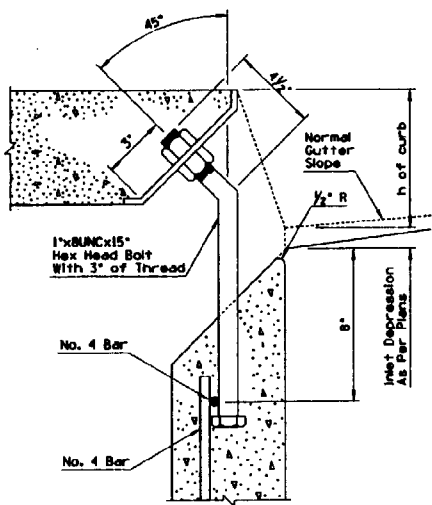


DETAIL NO. 1

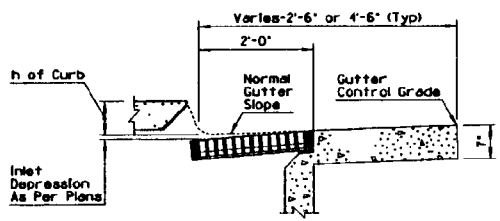
- GENERAL NOTES**
- See sheet 1 of 2 for other dimensions, notes and reinforcing steel.
  - $\phi t = 6'$  when H is 8' or less.  
 $8'$  when H is greater than 8'.



DETAIL NO. 3



DETAIL NO. 2  
CURB SUPPORT ANCHOR



DETAIL NO. 4

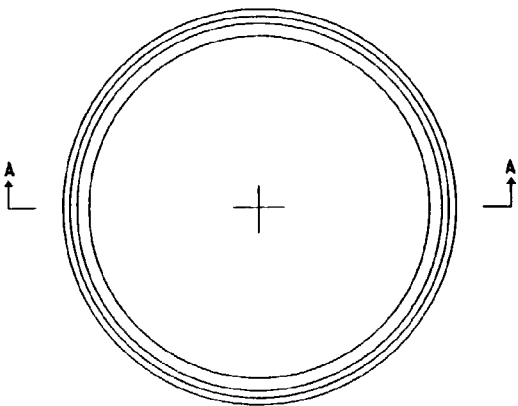
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|--|---|--|
| DESIGN APPROVED<br><i>Joseph H. Ottomano</i>   | STATE OF ARIZONA<br>DEPARTMENT OF TRANSPORTATION<br>DIVISION OF HIGHWAYS<br>STANDARD DRAWINGS | ISSUE<br>5/97                          |
| APPROVED FOR<br>CONSTRUCTION<br><i>Russell</i> | CATCH BASIN, TYPE 5   | DRAWING NO.<br>C-15.40<br>Sheet 2 of 2 |

|   |   |                        |
|---|---|------------------------|
| DESIGN APPROVED<br><i>James H. Ottum</i>          | STATE OF ARIZONA<br>DEPARTMENT OF TRANSPORTATION<br>DIVISION OF HIGHWAYS<br>STANDARD DRAWINGS | REV.<br>5/97           |
| APPROVED FOR<br>CONSTRUCTION<br><i>Donna Hall</i> | CATCH BASIN, GRATES   | DRAWING NO.<br>C-15-50 |

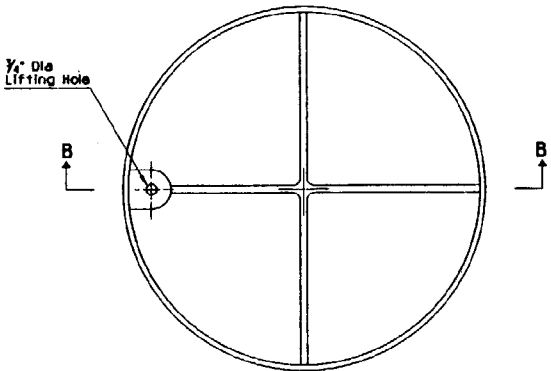
|           |      |    |
|-----------|------|----|
| REVISIONS | DATE | BY |
|           |      |    |
|           |      |    |
|           |      |    |
|           |      |    |

# GENERAL NOTES

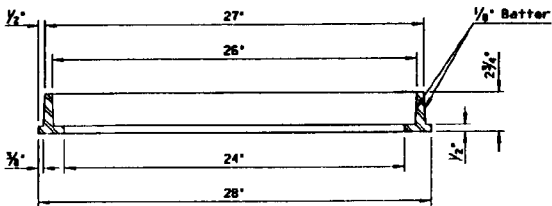
1. Cover shall be non-locking.
2. Frame and cover shall be cast iron or structural steel.
3. Catch basin access frame and cover is for use in sidewalk area only.
4. Cover shall be filled with concrete and broom finished.



PLAN

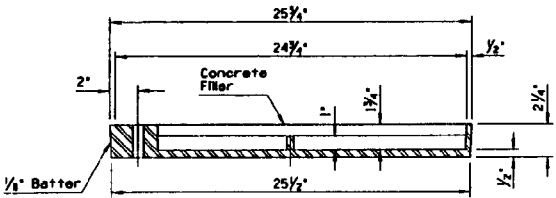


PLAN



SECTION A-A

FRAME

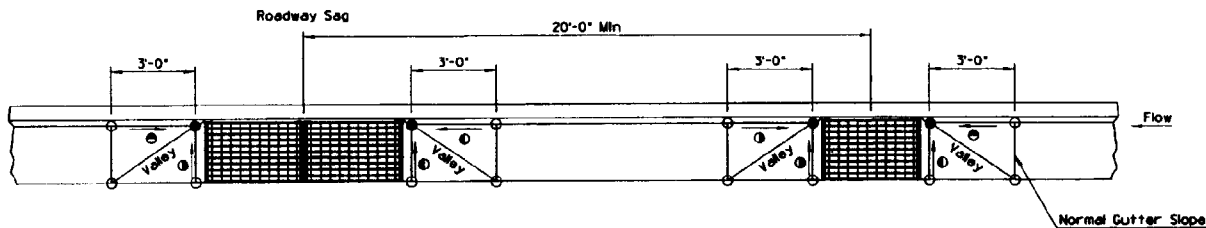


SECTION B-B

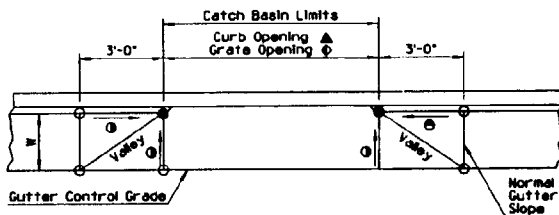
COVER

|  |   |                        |
|--|---|------------------------|
| DESIGN APPROVED<br><i>James H. Ott</i>           | STATE OF ARIZONA<br>DEPARTMENT OF TRANSPORTATION<br>DIVISION OF HIGHWAYS<br>STANDARD DRAWINGS | ISSUE<br>5/97          |
| APPROVED FOR<br>CONSTRUCTION<br><i>R. M. ...</i> | CATCH BASIN ACCESS<br>FRAME AND COVER DETAILS   | DRAWING NO.<br>C-15.65 |

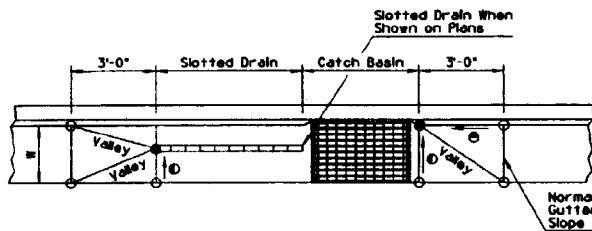
| REVISIONS                             | DATE | BY  |
|---------------------------------------|------|-----|
| 1. REVISED STD FOR NEW FRAME          | 7/92 | PHB |
| 2. REVISED DETAIL TO SHOW WIDE GUTTER | 7/92 | PHB |
| 3. REVISED DETAIL                     | 7/92 | PHB |



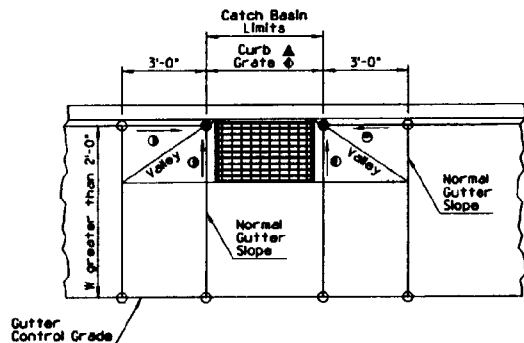
CATCH BASIN SPACING AT ROADWAY SAG CONDITION



INLET DEPRESSION

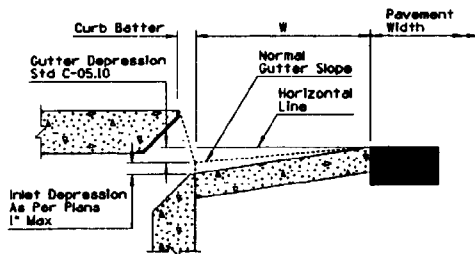


INLET DEPRESSION  
CATCH BASIN WITH SLOTTED DRAIN

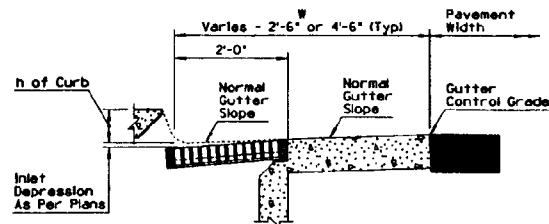


INLET DEPRESSION  
CATCH BASIN WITH WIDE GUTTER

②



DETAIL NO. 1



DETAIL NO. 2 ②

## GENERAL NOTES

1. No inlet depression shall extend into a traffic lane.
2. Maximum combined inlet and gutter depression is 3 inches. See Detail No. 1.
3. Maximum distance along curb between catch basins where full gutter depression is used is 10 feet.
4. See Std. C-15.80 for aprons used with C-15.80 Catch Basin.
5. See Detail No. 2 for grate type catch basins with wide gutter.

## LEGEND

- - Normal pavement or gutter flow line elevation.
- - Depressed elevation.
- ◐ - Straight grade with downward slope.
- W - Normal gutter width per Std. C-05.10.
- ▲ - Types 1, 3, & 5.
- ◆ - Type 4 & C-15.91.

|  |   |  |
|--|---|--|
| DESIGN APPROVED<br><i>James H. Osterman</i>            | STATE OF ARIZONA<br>DEPARTMENT OF TRANSPORTATION<br>DIVISION OF HIGHWAYS<br>STANDARD DRAWINGS | REV.<br>5/97                           |
| APPROVED FOR<br>CONSTRUCTION<br><i>Robert J. Smith</i> | ① CATCH BASIN MISC. DETAILS   | DRAWING NO.<br>C-15.70<br>Sheet 1 of 2 |

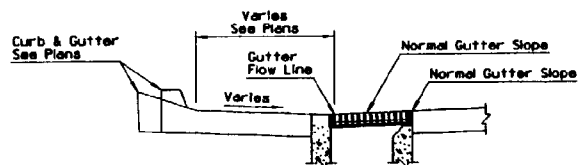
| NO. | REVISION / NOTES | DATE | BY |
|-----|------------------|------|----|
| 1   |                  |      |    |
| 2   |                  |      |    |
| 3   |                  |      |    |

## GENERAL NOTES

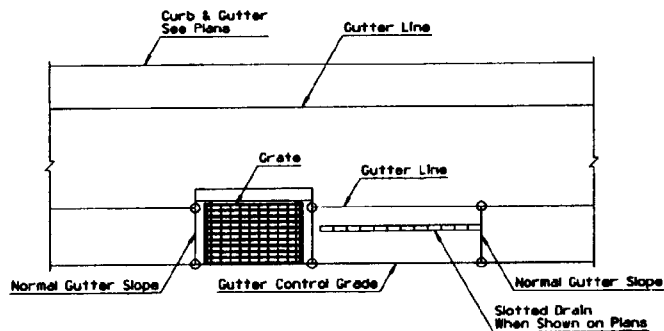
- Construction drain may be deleted at the option of the Engineer.

## LEGEND

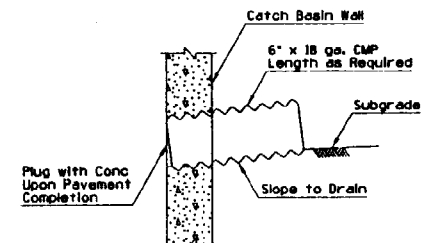
- - Normal pavement or gutter flow line elevation.



SECTION



TYPE 4 CATCH BASIN WITHOUT CURB

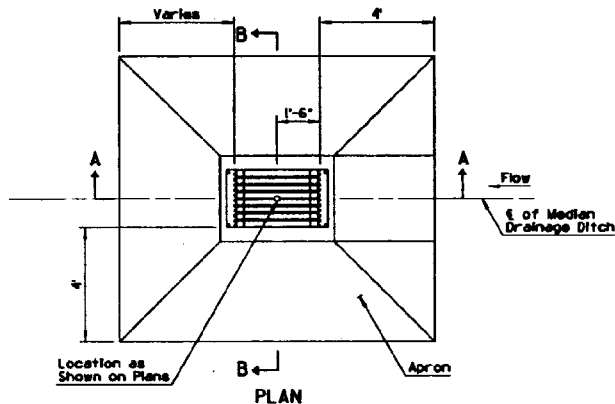
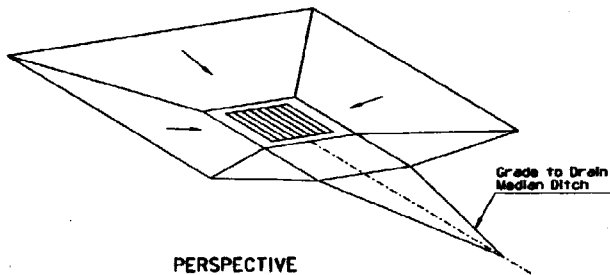


CATCH BASIN CONSTRUCTION DRAIN

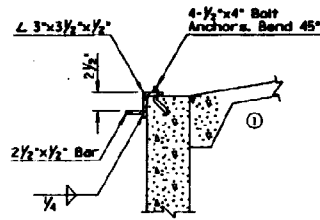
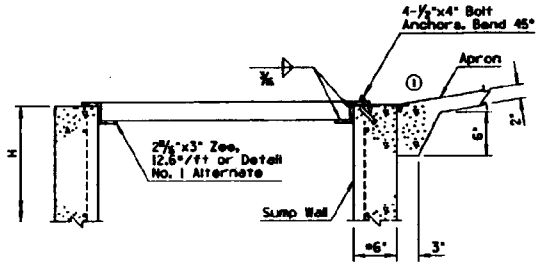
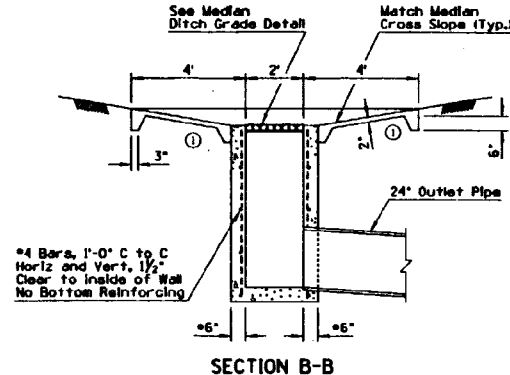
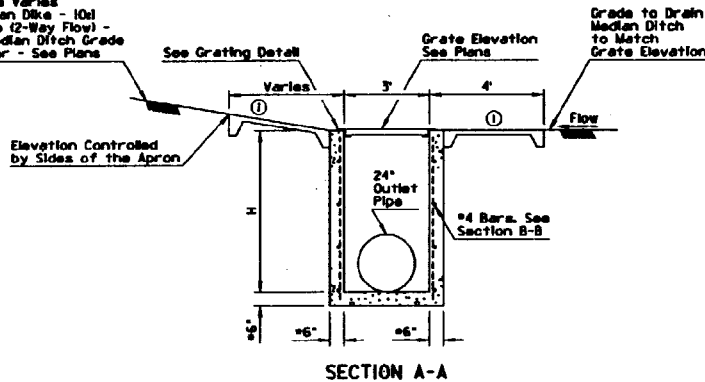
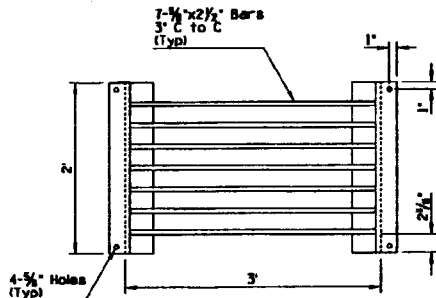
|   |   |  |
|---|---|--|
| DESIGN APPROVED<br><i>Joseph H. Ottens</i>            | STATE OF ARIZONA<br>DEPARTMENT OF TRANSPORTATION<br>DIVISION OF HIGHWAYS<br>STANDARD DRAWINGS | ISSUE<br>5/97                          |
| APPROVED FOR<br>CONSTRUCTION<br><i>David Williams</i> | ① CATCH BASIN MISC. DETAILS   | DRAWING NO.<br>C-15,70<br>Sheet 2 of 2 |



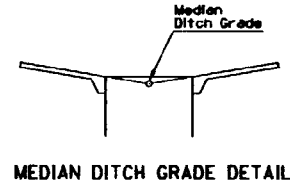
| REVISIONS  | DATE | BY   |
|--|------|------|
| 1. CHANGES APPROVED BY PORTLAND CEMENT CONCRETE ONLY | 7/8  | 5/97 |
| 2. REVISIONS   | 7/8  | 5/97 |
| 3.   |      |      |
| 4.   |      |      |



- ② Slope Varies  
Median Dike - 10:1  
Sump (2-Way Flow) -  
Median Ditch Grade  
Other - See Plans

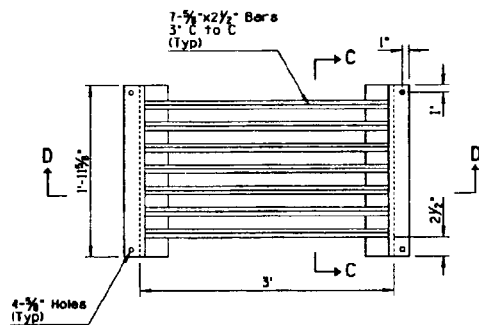


- ### GENERAL NOTES
1. Apron shall be portland cement concrete.
  2. All concrete shall be Class B.
  3. Grating shall be fabricated of structural steel.
  4. Structural steel shall be in accordance with ASTM A36.
  5. Welding shall be in accordance with Standard Welding Specifications.
  6. Grating assembly shall be given one shop coat of No. 1 paint.
  7. "W" indicated on plans.
  8. "8" When Wall Height Exceeds 8'

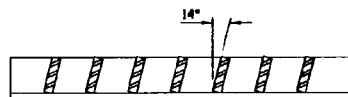


|   |   |                        |
|---|---|------------------------|
| DESIGN APPROVED<br><i>Lucy H. Ott</i>           | STATE OF ARIZONA<br>DEPARTMENT OF TRANSPORTATION<br>DIVISION OF HIGHWAYS<br>STANDARD DRAWINGS | REV.<br>5/97           |
| APPROVED FOR<br>CONSTRUCTION<br><i>R. M. M.</i> | CATCH BASIN, MEDIAN<br>FLUSH  | DRAWING NO.<br>C-15-20 |

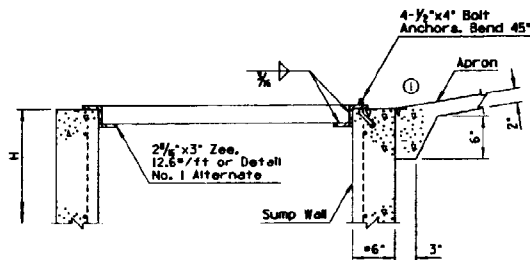
| NO. | DESCRIPTION OF REVISION                        | MODEL #7 | DATE |
|-----|--|----------|------|
| 1   | CHANGED APRON TO PORTLAND CEMENT CONCRETE ONLY | PMB      | 5/97 |
| 2   | REVISED SLOPE                                  | PMB      | 3/97 |
| 3   |  |          |      |
| 4   |  |          |      |



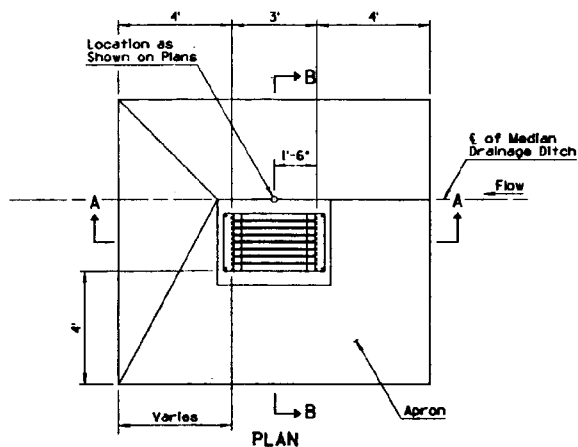
### GRATING DETAIL



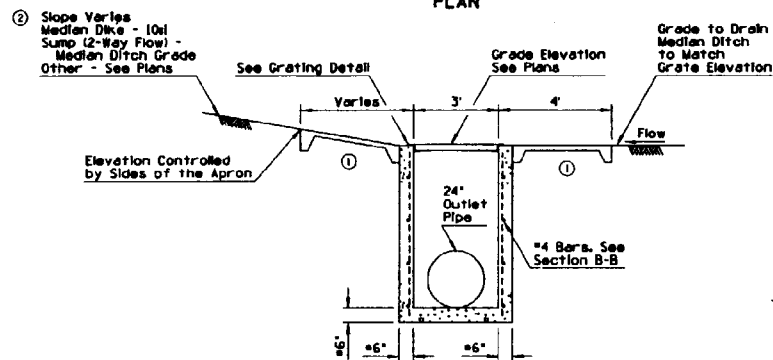
**SECTION C-C**



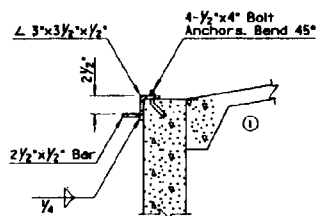
**SECTION D-D**



## PLAN

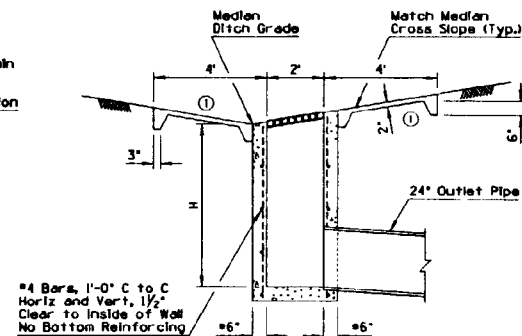


**SECTION A-A**



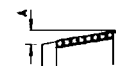
DETAIL NO. 1

- ## GENERAL NOTES
- ① 1. Apron shall be portland cement concrete, Class B.
  2. All concrete shall be Class B.
  3. Grating shall be fabricated of structural steel.
  4. Structural steel shall be in accordance with ASTM A36.
  5. Welding shall be in accordance with Standard Welding Specifications.
  6. Grating assembly shall be given one shop coat of No. 1 paint.
  7. 'H' Indicated on plans.
    - B' When Wall Height Exceeds 8'



**SECTION B-B**

| <b>Slope</b> | <b>A</b>     |
|--------------|--------------|
| <b>6:1</b>   | <b>0.50'</b> |
| <b>4:1</b>   | <b>0.75'</b> |
| <b>3:1</b>   | <b>1.00'</b> |
| <b>2:1</b>   | <b>1.50'</b> |



### WALL HEIGHT DETAIL

|  |   |                            |
|--|---|----------------------------|
| DESIGN APPROVED<br><i>Joseph H. Ottomano</i>     | STATE OF ARIZONA<br>DEPARTMENT OF TRANSPORTATION<br>DIVISION OF HIGHWAYS<br>STANDARD DRAWINGS | REV.<br><br>5/97           |
| APPROVED FOR<br>THE TRIBUTARY<br><i>B. B. B.</i> | CATCH BASIN, MEDIAN<br>SIDE SLOPE   | DRAWING NO.<br><br>C-15.B1 |